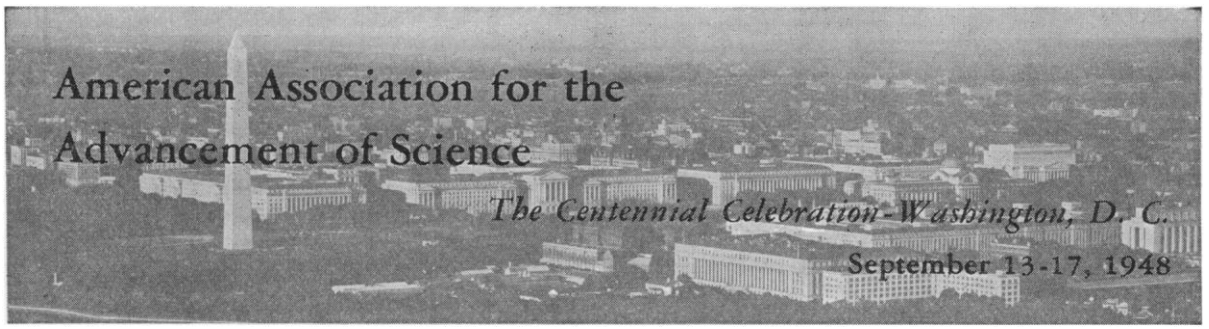

The Weather Bureau

Few scientific organizations in Washington are as much in the public eye as the U. S. Weather Bureau, which has headquarters at 24th and M Streets, N.W. The functions of the Bureau are defined in its Organic Act of 1890 and in subsequent legislation, principally the Civil Aeronautics Act and its amendments. These functions include not only extensive field service and daily public service activities but also fundamental research work in the science of the atmosphere.

In the field service branch of its organization, the Bureau operates nearly 400 stations in the United States and territories, many of them maintaining continuous 24-hour operation every day, including Sundays and holidays. It has more than 9,000 cooperating field stations that supply weather data mainly for climatic and hydrologic reports and studies. The vagaries of the weather with time and place are such that more than 10,000,000 observations of weather per year are necessary to enable the Bureau to record significant features for benefit of agriculture, aviation, business, commerce, engineering, industry, transportation, and the sciences. Some 3,800 different weather forecasts are regularly prepared and issued each day by the Forecast Centrals of the Bureau to serve the needs of aviation and the general public. The timely warnings of hurricanes, floods, cold waves, and other severe conditions are instrumental in saving hundreds of lives and hundreds of millions of dollars worth of livestock and other property every year. The field service of the Bureau constitutes the second largest national weather service in the world.

In its research and scientific services branch, the Weather Bureau engages in basic research aimed at improvement in the accuracy of weather forecasts and in extension of their time range for benefit of agriculture, in particular. With the cooperation of the U. S. Air Forces, which furnishes aircraft and radar equipment, the Bureau for the last two years has carried on an intensive research program in the mechanics of severe thunderstorms and the turbulence phenomena associated therewith. This project has recently been expanded to investigate the possibilities of producing rainfall artificially, testing the much publicized dry-ice method, and also experimenting with other nucleation materials. Another important phase of the research interests pursued by the Bureau is that relating to use of electronics computers to solve some of the fundamental problems in the circulation of the atmosphere and the thermodynamical processes relating to conversion of the sun's radiation into the diverse forms of weather and climate.

F. W. Reichelderfer is chief of Bureau, W. F. McDonald and D. M. Little are assistant chiefs, and R. C. Grubb is budget officer. Division chiefs include: Merrill Bernard (Climatological and Hydrologic Services), L. E. Brotzman (Division of Station Operations), Ross Gunn (Division of Physical Research), C. G. Swain (Division of Personnel), I. R. Tannehill (Division of Synoptic Reports and Forecasts), W. R. Thickstun (Instrument Division), Wm. Weber (Administration), R. H. Weightman (International Meteorological Projects), and H. Wexler (Division of Scientific Services).

The Fish and Wildlife Service

The Fish and Wildlife Service is the agency of the Federal Government concerned with the management of the country's resources in vertebrate wildlife, including fishes and marine mammals. Its complex and diversified work is based on the results of investigations in practically all parts of the United States and in adjacent countries.

The agency was created on June 30, 1940, by the consolidation of the Bureau of Biological Survey and the Bureau of Fisheries. A year earlier both bureaus had been transferred to the Department of the Interior—the Bureau of Fisheries, established in 1871, from the Department of Commerce, and the Bureau of Biological Survey from the Department of Agriculture, where it had been founded in 1885.

The organization consists of the central headquarters in Washington, D. C., 6 regional offices situated within definitely prescribed geographical boundaries, and some 400 field stations consisting of wildlife refuges, fish-cultural stations, biological and technological research stations, fishery market news offices, game management agents, and predator and rodent control district agents. The regional directors and their staffs are located in Portland, Oregon; Albuquerque, New Mexico; Minneapolis, Minnesota; Atlanta, Georgia; Boston, Massachusetts; and Juneau, Alaska.

Albert M. Day has been director of the Service since April 1, 1946, when he succeeded Ira N. Gabrielson, re-

tired. Assistant directors are Milton C. James and Clarence Cottam.

Stated briefly, the Service conducts research on birds, mammals, and fishes to learn the habits, needs, and economic utilization of the various forms; recommends and enforces regulations in the United States for the protection of migratory birds under the provisions of the treaties with Great Britain and Mexico; administers and operates 291 wildlife refuges and 98 fish hatcheries; cooperates in the control of predatory animals and rodents; administers the Federal Aid in Wildlife Restoration Act in the interest of wildlife conservation; and collects, analyzes and publishes data concerning the commercial fisheries, their status, trends, utilization, depletion, rehabilitation, and management.

The Service's principal wildlife research laboratory is located at the Patuxent Research Refuge at Laurel, Maryland, where studies are being conducted on the effects of rodenticides, herbicides, insecticides, and fungicides on wildlife and their foods. In the Denver, Colorado, laboratory the powerful new rodenticide known as "1080" was developed and tested during the war. Research and demonstration projects are conducted in cooperation with land-grant colleges and conservation commissions in 13 states.

During their years of research since 1885, Service scientists have collected more than 140,000 specimens of mammals in North America. Housed in the National Museum in Washington, D. C., this collection—largest of its kind in the world—includes the smallest mammal on the continent, a three-inch shrew, and a Kodiak bear, the largest existing meat eater. The collection is used constantly by the Service and by other Federal and State agencies and the public at large to help answer many controversial questions dealing with grazing, horticulture, predatory-prey relationships, management problems, and diseases.

The primary aims of the Service's fishery research activities are the stabilization of the fishing industry and the management and maintenance of the recreational fisheries. To this end, fishery biological investigations of the causes of fluctuations in abundance of food fishes in the lakes, rivers, and coastal waters of the country are conducted at approximately 20 field stations in the United States, Alaska, and Puerto Rico.

In addition, a wide range of research and service activities is conducted for the producers, dealers, consumers, and allied interests of the commercial fishery industry which produces between 4 and 5 billion pounds of commodities each year. A partial list of recent accomplishments in this field includes the adaptation of Pacific Coast purse seine fishing methods to catching menhaden and other schooling fish in South Atlantic waters, testing and developing wartime substitutes for tin plate and cordage fibers, developing a dry-ice package for fresh fish; devising suitable methods for handling mussels and ocean quahogs; developing special canned fish products for government and domestic purchase; and dehydrating fishery products to save shipping space.

A review of the accomplishments of the staff workers of the Fish and Wildlife Service would fill volumes. Food habits investigators, migration and distribution experts, refuge managers, fish culturists, predatory-animal and rodent control workers, law-enforcement agents, all have contributed materially to the detailed knowledge of the life histories, habits, distribution, and status of the various forms of fish and wildlife which is so indispensable in connection with the administration of the wildlife resources along the many lines embraced in the general activities of the Service.

The U. S. Office of Education

In 1867 the Congress stated in part that the Office of Education exists "for the purpose of collecting such statistics and facts as shall show the condition and progress of education in the several States and Territories, and of diffusing such information . . . as shall aid the people of the United States in the establishment and maintenance of efficient school systems."

It is through its Office of Education, in the Federal Security Agency, that the Federal Government provides a great variety of supporting services to all types of schools and colleges, both public and private.

The organization of professional and technical staff in the Office follows the general pattern of education throughout the country. There are 8 operating divisions: (1) Elementary Education; (2) Secondary Education; (3) Vocational Education; (4) Higher Education; (5) School Administration, which includes services in such fields as county, city, and state administration of schools, school transportation, state legislation affecting schools, financing education, school building surveys and planning, and the business management of schools; (6) Auxiliary Services, including the educational uses of radio, services to libraries, visual education, school-community recreation, administration of school health services, and problems of school lunch management; (7) International Educational Relations; and (8) Central Services, which includes research and statistics, information and publications, and budget, personnel, and fiscal services.

In general, these divisions carry on the following broad functions:

(1) The collection and interpretation of information with respect to education throughout the United States and other countries in order to make possible intelligent comparisons and conclusions regarding the efficiency of educational programs.

(2) The formulation and recommendation of minimum educational standards which should prevail in the schools and colleges of all the states. A related function is the preparation of suggestion plans for improving various educational practices.

(3) The provision of services of a national or regional character that cannot well be undertaken by single states acting alone, e.g. the collection, interpretation, and dissemination of national statistics, the conduct of national and other important surveys, or the convening of conferences of national and regional significance.

(4) The offering of consultative services to states, school systems and higher educational institutions on problems of reorganization, finance, administration, and curriculum.

(5) The coordination of government activities relating to education through schools and colleges.

In all such functions it is apparent that encouragement and stimulation, rather than control, are envisaged as the objectives of the Office for education in the states.

The long-range Office program of working toward the improvement of American education necessitates special research projects and surveys, carried out by the specialists in the various divisions. Such projects are continuous, varied, and extensive. Typically, their results are reflected in school systems throughout the Nation.

Examples of the down-to-earth, nation-wide results being achieved as the direct result of research done by the Office may be noted briefly:

(1) During the past year the Office of Education has given substantial assistance to the states in strengthening educational programs related to national security. This new emphasis was made possible by the Congress through an increase of approximately 30% in operating funds during the past fiscal year. Important research developments went forward in three fields: education for democratic citizenship, education in science and mathematics, and education for health and physical fitness. Much could be done to improve the teaching of science in the schools of the Nation through consultative methods which involve working with cooperating elementary schools, high schools, and colleges of the states through institutes, workshops, conferences, publication of materials, and demonstration teaching.

(2) With the Citizens' Federal Committee on Education serving the Office of Education as lay advisory group, the Office in turn serves the Committee as research staff. Thus, jointly, they have developed a continuing nation-wide radio and press campaign to inform the American people of the extent of the crisis in their schools. Equally significant, this vast information program recommends means for improving the quality of education.

(3) With its own and other organizations' research showing that the Nation's high schools are not meeting the needs of the great majority of our youth, the Office of Education is giving active leadership in preparing high schools to revamp the traditional curriculum. It has long served college-bound youth, or youth destined for the relatively few skilled trades, but it is not adequate for the multitude of youth who are bound for the vast number of unskilled and semiskilled occupations requiring a minimum of training. Helping the states and local communities to understand this problem, and stimulating them to develop educational services adequate for all American youth—these are the aims of the Commission on Life Adjustment Education for Youth, established by the U. S. Commissioner of Education for that purpose. Regional and national conferences, sponsored by the Office of Education, have been and will continue to be of decisive and immediate importance to all the high schools of the Nation.

The following personnel are responsible for the administration of the 8 operating divisions: Acting Commissioner and director, Division of Auxiliary Services, Rall I. Grigsby; director, Division of School Administration, Edgar Fuller; director, Division of Elementary Education, Bess Goodykoontz; director, Division of Secondary Education, Galen Jones; Assistant Commissioner for Vocational Education, Raymond W. Gregory; director, Division of Higher Education, John Dale Russell; executive assistant to the Commissioner and director, Division of Central Services, Ralph C. M. Flynt; director, Division of International Educational Relations, Kendric N. Marshall.

The Food and Drug Administration

The Food and Drug Administration, Federal Security Agency, enforces 5 statutes designed to insure the safety, purity, and honesty of foods, drugs, devices, and cosmetics. Formally established in 1927, the Administration staff continued the regulatory work that it had performed for the 20 previous years as a part of the Bureau of Chemistry, U. S. Department of Agriculture. The Food and Drug Administration and the responsibility for the enforcement of the Food, Drug, and Cosmetic Act, the Caustic Poison Act, the Filled Milk Act, the Import Milk Act, and the Tea Importation Act were transferred to the Federal Security Agency in 1940.

Of these acts, the Food, Drug, and Cosmetic Act requires the main time and resources of FDA and is the only one under which important scientific research is being done. To carry on its enforcement operations the Administration has 16 field stations located in various parts of the country, equipped with laboratories where most of the examinations of foods, drugs, and cosmetics are made. In Washington, the following technical divisions make scientific investigations and conduct examinations requiring special facilities or personnel trained in specialized fields: Cosmetic, Food, Medical Microbiological, Penicillin Control and Immunology, Pharmacology, and Vitamin.

The research work of the Administration is directed toward extending the amount of useful work that can be accomplished in enforcing the law. It is of four different kinds: (1) development of new, more rapid, more precise methods for the examination of products; (2) scientific investigations to furnish background data for policy determinations in the enforcement program; (3) studies related to the formulation of food standards; and (4) research related to actions in the Federal courts.

These lines of research contribute to scientific data on the composition of products under the jurisdiction of the acts enforced, the potency and therapeutic efficacy of drugs and vitamins, and the potential dangers inherent in various substances and combinations of substances. The development of new and improved methods to detect adulteration is the particular province of law-enforcement scientists, who are among the few that have a direct interest in this field. The knowledge acquired in the past four decades in the enforcement laboratories, supple-

mented by the scientific data developed by other groups, and the use of new, more precise testing instruments have made it possible for the Government and industries to eliminate types of contamination that were formerly beyond control.

One of the most significant recent developments has been the investigational work attending the control of the newer antibiotic drugs. FDA scientists pioneered in the wartime work on penicillin, and later on streptomycin. Amendments to the Food, Drug, and Cosmetic Act require that both of these drugs and their products be certified by the Administration before distribution. This certification involves not only the development of testing methods and safety precautions, but basic research on new forms of these substances and their efficacy in clinical use.

The Washington laboratories are located in the 12th and C, S. W., corner of the South Agriculture Building; the administrative offices are in the Federal Security Building at 4th and Independence Avenue, S. W.

U. S. Geological Survey

Established by Congress in 1879, the Geological Survey was charged with "the classification of the public lands and examination of the geological structure, mineral resources, and products of the national domain." This directive was at first interpreted to apply only to the public lands of the West, but the Bureau was soon authorized to proceed with "the preparation of a geologic map of the United States."

As the name implies, a principal objective of the Survey from the first has been the preparation of geological maps and reports on the general and economic geology of the country. However, problems of national scope that arose during development of the West led to the assignment of numerous activities not strictly geological in character. Many of these related activities developed into major governmental responsibilities and were subsequently assigned to special agencies such as the Forest Service, Bureau of Reclamation, Bureau of Mines, and Grazing Service. Others remain as an integral part of the Geological Survey.

Base maps were early recognized as essential to geological investigations, and a comprehensive program of topographic mapping was undertaken. Though designed primarily for geological purposes, topographic maps have proved valuable for innumerable scientific and engineering uses and their preparation is now one of the Survey's four major functions.

When the problem of irrigating the arid lands of the West attracted general interest, the Geological Survey was given a specific appropriation to undertake water studies. This work has continued and greatly expanded, and the Survey now investigates as the third of the four major activities, the quantity, distribution, mineral quality, availability, and utilization of surface and underground water supplies of the United States and its territories and possessions.

The Survey's fourth principal function includes (a) classification of the public lands with respect to their mineral and water resources and (b) supervision of mineral (oil, gas, coal, potash, etc.) development on leased public and Indian lands in order to protect the property and miners against wasteful or dangerous operating practices.

In these varied activities the Geological Survey employs about 2,000 topographic, hydraulic, mining, and petroleum engineers, geologists, paleontologists, mineralogists, chemists, physicists, and geophysicists with headquarters in Washington or in field offices, together with several thousand subprofessional, clerical, and other assistants. In connection with the central offices in Washington it maintains laboratories for chemical analysis of rocks and minerals; photogrammetric equipment for preparing planimetric and topographic maps from aerial photographs; cameras, presses, etc. for engraving and printing topographic and geologic maps; and the world's largest geological library (400,000 publications). The present and sixth director of the Survey, W. E. Wrather, was appointed by President Roosevelt in 1943. Other principal administrative officers, general and branch, are: assistant director, T. B. Nolan; administrative geologist, J. D. Sears; chief, Geologic Branch, W. H. Bradley; chief, Topographic Branch, G. FitzGerald; chief, Water Resources Branch, C. G. Paulsen; chief, Conservation Branch, H. J. Duncan.

The Survey has played a significant part in the development of geological and related sciences in this country and elsewhere. Its publications constitute a body of geologic fact and principle that compares favorably in quantity, range of subject matter, and quality with that of other institutions here or abroad. Outstanding scientific contributions have been made by individual members of the Survey in such fields as geochemistry, glacial history, ground-water occurrence, ore deposits, origin of land-forms, paleontology, petrology, and photogrammetry.

The U. S. Forest Service

The Forest Service, an agency of the U. S. Department of Agriculture, is charged with responsibility for promoting the conservation and wise use of the Nation's forest lands, aggregating about one-third of the total land area of the United States.

Although the Service was established in its present form in 1905, government forest work really began with the appointment of a special agent in the Department of Agriculture in 1876 to study forest conditions in the United States. A Division of Forestry was created in 1881, which developed into a Bureau of Forestry in 1901. Forest reserves in the public domain, which had been under jurisdiction of the Department of the Interior, were transferred to the Department of Agriculture in 1905, and the Bureau of Forestry, renamed the Forest Service, was placed in charge of them.

Activities of the Service fall into three main divisions:

National Forests. The Service administers 152 National Forests, comprising approximately 180,000,000

acres located in 40 states, Alaska, and Puerto Rico. The national forest resources are managed for orderly and continuous service to the public and for the maintenance of stable economic conditions in local communities. Technical methods of forestry are applied to the growing and harvesting of timber. Livestock grazing is allowed under permit and is scientifically regulated to obtain range conservation along with use of the annual growth of forage. Provision is made for popular outdoor recreation. In cooperation with the states, management is applied to the development and maintenance of wildlife resources. Many of the national forest lands are highly important watersheds, and the watersheds are managed for regulation of stream flow, reduction of flood danger and soil erosion, and protection of sources of water for power, irrigation, navigation, and municipal and domestic supply.

Cooperation in Forestry. The Service cooperates with the states in the encouragement of sound forest management practices on state and private forest lands. Cooperative programs are carried on in the development and maintenance of organized protection of forest land against fires; in the distribution of planting stock to farmers for windbreaks, shelterbelts, and farm woodlands; and in providing technical advice to farm woodland owners on forest management and on marketing of farm forest products. The Service cooperates with the states to stimulate development, proper administration, and management of state forests, and with communities, counties, and organizations in the development and management of community forests. It also administers the agricultural conservation program as applied to the naval stores industry.

Research. The Service maintains 11 regional forest and range experiment stations, with a number of branch stations and research centers, where investigations are conducted in the entire field of forestry and wild-land management, including the growth, protection, and harvesting of timber, management of range lands, and forest influences. A Tropical Forestry Unit in Puerto Rico conducts research in tropical forestry and serves as a center for exchange of technical information among foresters of the Central and South American countries. The Forest Products Laboratory, at Madison, Wisconsin, conducts studies looking to efficient and economical utilization of wood, reduction of waste, and development of new uses for forest products. A Division of Forest Economics compiles forest statistics, conducts studies in the economics of forestry, and is making a nation-wide survey of forest resources.

In the growth of the forestry movement in America the Forest Service has been a leading agency. Development of the National Forest system was the first great step in conservation. Forest Service research has provided in large measure the technical foundation for forest management in this country. The Service pioneered in organized, systematic forest-fire control. Its Forest Products Laboratory has become the foremost institution of its kind in the world, with a long list of outstanding accomplishments.

Headquarters of the Service are in the South Agriculture Building, Washington, D. C. The Service maintains 10 regional offices—at Missoula, Montana; Denver, Colorado; Albuquerque, New Mexico; Ogden, Utah; San Francisco, California; Portland, Oregon; Philadelphia, Pennsylvania; Atlanta, Georgia; Milwaukee, Wisconsin; and Juneau, Alaska.

Chief of the Service is Lyle F. Watts. Assistant chiefs are R. E. Marsh, E. W. Loveridge, C. M. Granger, E. I. Kotok, R. E. McArdle, and Howard Hopkins.

The U. S. Coast and Geodetic Survey

The U. S. Coast and Geodetic Survey, a Bureau of the Department of Commerce, was created on February 10, 1807, during the administration of President Thomas Jefferson, for the purpose of surveying and charting the coastal waters of the United States. The undertaking had the backing of leading scientists, notably members of the American Philosophical Society, who advised President Jefferson on a fundamental plan of operation. The plan finally adopted was submitted by Ferdinand R. Hassler, one of the originators of the Geodetic Survey of Switzerland, who later became the first superintendent of the Survey.

The Bureau has grown with the Nation's territorial expansion and commercial development. Today, the full scope of its work embraces such activities as: surveying and charting over 1,000,000 square miles of coastal waters in the United States and possessions; the establishment of precise geographical positions and elevations in the interior of the country; observation, analysis, and prediction of tides and currents; a magnetic survey of the United States and the regions under its jurisdiction; preparation of aeronautical charts for civil aviation; and seismological observations and investigations.

Some 900 nautical charts and 800 aeronautical charts are published at the present time to meet the needs of the mariner and aviator. Over 100,000 miles of first- and second-order triangulation arcs and over 300,000 miles of first-order leveling have been established within the United States, for use in Federal, State, and local mapping and engineering projects.

The central office of the Coast and Geodetic Survey is located in Washington, D. C. Field offices are maintained at a number of prominent coastal ports and at several cities in the interior for closer liaison with commerce and industry. The Bureau is subdivided into 8 major Divisions, constituted along functional lines, to direct its field and office activities. The personnel consists of a commissioned corps and a civilian staff, both recruited from Civil Service registers. The administration of the entire Bureau is under the supervision of a director and an assistant director, both holding the rank of Rear Admiral.

The record of the Coast and Geodetic Survey is one of service to commerce, industry, engineering, and science. Its work, although of a practical nature, is carried on with scientific accuracy. During its long history it has made many significant contributions to scientific thought, resulting directly from its own researches and

as by-products of its activities. Its investigations in the field of geodesy have furnished a more accurate figure of the earth and a substantiation of the theory of isostasy; a theory of tides has been formulated and quantitative data collected for the study of coastal stability; the development of acoustic and radio-acoustic methods of hydrographic surveying has furnished basic data for the study of submarine geology.

Additions are constantly being made to its storehouse of scientific knowledge. Some of the researches under way at present are: investigations of gravity anomalies and their relation to the deflection of the vertical; studies of horizontal and vertical earth movements in areas of seismic activity; the development of a general warning system for seismic sea waves; and the improvement of electronic equipment for the extension of accurate hydrographic surveys to the Continental Shelf and beyond.

Rear Adm. Leo Otis Colbert is the present director of the Bureau, and Rear Adm. Jean H. Hawley is assistant director.

The Society of American Foresters

The Society of American Foresters, organized in 1900 in Washington, D. C., is a nonprofit, professional organization of nearly 6,000 technically trained foresters. It is wholly independent of influence by government and industry, and it is spokesman for the profession as a whole rather than for any group or agency.

The objects of the Society are to represent advance, and protect the interests and standards of the profession, to provide a medium for exchange of professional thought, and to promote the science, practice, and standards of forestry in America. The Society is the organization through which trained and practicing foresters express the views of the profession and lead in shaping the policies and techniques of forestry in America.

The governing body is a Council of 11, elected for two-year terms. The present Council is serving for the period 1948–49.

The officers are the president and vice-president, who are members of the Council, and the executive secretary, who is appointed by the Council. These incumbents are: president, Clyde S. Martin, Weyerhaeuser Timber Company, Tacoma, Washington; vice-president, Charles F. Evans, U. S. Forest Service, Atlanta, Georgia; executive secretary, Henry Clepper, Washington, D. C.

The Society's official organ is the *Journal of Forestry*, a monthly professional magazine devoted to all branches of technical forestry.

Eight technical subject divisions, each with its own elected officers, provide effective means for considering various phases of forestry. A meeting of each division is held at least once a year in connection with the annual meeting of the whole Society. These divisions are concerned with forest-wildlife management, forest economics, forest products, forest recreation, forestry education, private forestry, range management, and silviculture.

In addition, there are 21 regional sections, every member of the Society being entitled to membership in the section in which he is domiciled. Most of the sections hold at least two annual meetings, an indoor winter meeting and an outdoor summer field meeting. Frequently the sections undertake special projects leading to the publication of bulletins, articles, and other technical information for their territories.

Working through a special committee, the Society is the sole accrediting agency for professional forestry education in the United States. Among its current technical activities are a revision of the forestry terminology, the compilation of a foresters' field manual, and the standardization of grades for forest planting stock. A recent publication is the book *Problems and progress of forestry in the United States*, written by a joint committee of the Society and the National Research Council.

Naturally, the Society of American Foresters actively cooperates with other professional and scientific organizations. It has a representative in the Division of Biology and Agriculture of the National Research Council, and in the Council of the AAAS, with which it is affiliated through Section O (Agriculture).

Its national headquarters is in the Mills Building, 17th Street at Pennslyvania Avenue, N.W., Washington, D. C.

The National Education Association

Established in 1857, the National Education Association of the United States for 91 years has been the center of the professional life of American teachers. It is dedicated to "the upbuilding of democratic civilization and supported by the loyal cooperation of the teachers of the United States to advance the interests of the teaching profession, promote the welfare of children, and foster the education of all the people."

The Association, an independent, nongovernmental organization, has more than 440,000 individual members, with affiliated associations in 52 states and territories and in more than 2,200 local communities of the United States. It is now in the midst of a Victory Action Program for the advancement of education, which began in 1946 and has 1951 as the year for the achievement of its 21 goals. Its policies are determined by its members. It cooperates with all groups in American life who wish to improve education, but it affiliates with none of these groups. It works, however, for better schools and for the improvement of the professional, economic, social, and civic status of teachers.

Only members of the teaching profession are eligible for active membership in the NEA. Membership is voluntary. Although classroom teachers constitute the vast majority of the membership, school principals, supervisors, superintendents of schools, college professors, and university presidents are also members.

The NEA owns its own headquarters, a 7-story building at 1201 16th Street, N. W., Washington, D. C. Approximately 350 persons are employed full time at the headquarters, under the direction of Executive Secretary Willard E. Givens, who has held this position since 1935.

Each year at the Representative Assembly, which includes around 2,500 delegates elected by NEA members in local and state affiliated associations, officers of the Association are elected. Hlenn E. Snow, president of Dixie Junior College, St. George, Utah, is NEA president for 1947–48.

Through 29 special departments, the NEA has developed a method of meeting the special, as well as the general needs of teachers. The departments include Adult Education, American Association for Health, Physical Education, Recreation, American Association of School Administrators, American Association of Colleges for Teacher Education, American Educational Research Association, American Industrial Arts Association, Art Education, Association for Supervision and Curriculum Development, Audio-Visual Instruction, Classroom Teachers, Elementary School Principals, Higher Education, Home Economics, International Council for Exceptional Children, Kindergarten-Primary Education, Lip Reading, Music Educators National Conference, National Association of Deans of Women, National Association of Journalism Directors of Secondary Schools, National Association of Secondary-School Principals, National Association of School Secretaries, National Council of Administrative Women in Education, National Council for the Social Studies, National Science Teachers Association, Rural Education, Secondary Teachers, Speech Association of America, United Business Education Association, Vocational Education.

Important commissions are the Educational Policies Commission, the Commission for the Defense of Democracy Through Education, and the Commission on Teacher Education and Professional Standards. The Association also maintains joint committees with the American Library Association, the American Medical Association, and other groups.

With its departments, committees, and commissions, the NEA publishes 21 professional magazines, and nearly 200 other publications annually. These include research studies, bibliographies, and a wide variety of educational materials. The general publication is the NEA *Journal*, which is sent each month during the school year to every member.

An active program of public relations is maintained through releases to the newspapers, radio programs, and speakers on educational subjects. One of the most important public relations activities is the observance of American Education Week. During that week each year approximately 10,000,000 American citizens visit their schools.

In 1923 the NEA called the conference which created the World Federation of Education Associations. In 1946 it called a second conference of representatives of 38 national teachers associations. This conference established the World Organization of the Teaching Profession, of which, with many other national teachers' organizations, the NEA is a member.

The NEA also worked actively for the inclusion of references to education in the United Nations Charter, which led to the establishment of UNESCO.

In 1943 the members of the NEA contributed approximately $400,000 to help the schools promote the conditions which would make for peace.

Another project carried on by members of the NEA was the raising in 1948 of the Overseas Teacher Relief Fund of more than $250,000, which was used to send assistance to the most needy teachers in war-devastated countries.

The Smithsonian Institution

The Smithsonian Institution was established in 1846 under the will of James Smithson, who bequeathed his fortune "to the United States of America, to found at Washington, under the name of the Smithsonian Institution, an establishment for the increase and diffusion of knowledge among men." This bequest, amounting to $508,318.46, was formally accepted by Congress and the Institution established by an act approved August 10, 1846. The original bequest has been increased from time to time by other gifts and legacies. The Institution has its home in a building of Seneca brownstone in the Norman style of architecture, erected on the Mall in 1847–55.

The statutory members of the Institution are the President of the United States, the Vice-President, the Chief Justice, and the heads of the Executive Departments. The governing body is a Board of Regents, composed of the Vice-President of the United States, the Chief Justice, three members of the Senate, three of the House of Representatives, and six citizens selected by Congress, two of whom must be resident in the District of Columbia. The Board elects one of its members Chancellor, who acts as its presiding officer. The executive officer is the Secretary of the Institution, who is also elected by the Regents. There have been six secretaries: Joseph Henry, 1846–78; Spencer F. Baird, 1878–87; Samuel P. Langley, 1887–1906; Charles D. Walcott, 1907–27; Charles G. Abbot, 1928–44; and Alexander Wetmore, who was elected in 1945.

The objects of the Institution, as defined in the original plan of the first secretary, are: first, to increase knowledge by original investigation and, second, to diffuse knowledge, not only in the United States, but throughout the world, especially by its publications and by promoting an interchange of scientific thought among all nations.

The achievements of the Institution in the advancement of science are notable, and it is the parent of many of the scientific bureaus of the Government, notably the Weather Bureau, Bureau of Fisheries, and National Advisory Committee for Aeronautics, aside from the 10 government bureaus now under its direction. In addition to the researches carried on under its own roof, scientific investigators in the United States, as well as those abroad, have been aided. Books, apparatus, and laboratory accommodations have been supplied to thousands, and a number of money grants have been made. Personal encouragement and advice have been given, and thousands of letters are written each year in response to inquiries for scientific information.

From the early activities of the Smithsonian Institution a number of dependencies or branches have grown

up, which, with the exception of the Freer Gallery of Art, are supported by appropriations from Congress but are administered by the Institution. These are: International Exchange Service, U. S. National Museum, National Collection of Fine Arts, Freer Gallery of Art, Bureau of American Ethnology, National Zoological Park, Astrophysical Observatory, National Gallery of Art, National Air Museum, and Canal Zone Biological Area.

The Smithsonian publications constitute the principal medium for carrying out one of the fundamental functions of the Institution, "the diffusion of knowledge." The Institution proper issues four series: Smithsonian Contributions to Knowledge (discontinued in 1916); Smithsonian Miscellaneous Collections; Smithsonian Special Publications; and the Annual Report of the Institution. To these series should be added the publications issued under its direction by the National Museum and the Bureau of American Ethnology.

The works issued at the expense of the Institution proper are distributed to about 1,100 of the principal libraries of the world. The Annual Reports, the general appendix of which is made up of selected papers, reviewing in nontechnical language progress in scientific work in all its branches, are public documents and are more widely distributed than the other series, being printed in editions of 10,000 copies.

The Library of the Institution is devoted to the collection of periodicals and publications of a scientific nature as well as to the publications of the scientific institutions and learned societies of the world. An accumulation of nearly 1,000,000 volumes has thus been acquired, the main part of which forms the Smithsonian Deposit of the Library of Congress. Smaller libraries are maintained at the various branches of the Institution, and 35 sectional libraries of technical works in all branches of science are maintained for the use of the scientific staff.

Special Exhibits at Library of Congress

On September 12 a special exhibit honoring the AAAS on the occasion of its 100th anniversary will open at the Library of Congress. Rare books, manuscripts, maps, and pictorial material highlighting the achievements of American scientists will be featured in the display, which may be seen until October 15.

Among the treasures exhibited in the Rare Books Division will be a 15th-century manuscript of the popular encyclopedia, Bartholomaeus Anglicus' *De proprietatibus rerum*; incunabula editions of Aristotle, Lucretius, Ptolemy, Strabo, and other classic authorities; rare issues of some of the monumental works of European scientists, such as Copernicus, Galileo, William Harvey, and Sir Isaac Newton; and, among American publications, Hodder's *Arithmetic* (1719), the first mathematical book printed on this side of the water, and Benjamin Franklin's *A proposal for promoting of useful knowledge* (1743), which set the movement under way for the foundation of the American Philosophical Society.

Two other sections of the exhibit, which will be on view in the South Curtain of the second floor of the Library, will deal with the role played by Presidents of the United States in promoting science and with noteworthy American scientists and inventors of the past. Pieces on display will include a letter of Thomas Jefferson to the American Philosophical Society (January 28, 1797), acknowledging his election as president of that body and paying tribute to Benjamin Franklin. Also shown will be letters or papers written by Louis Agassiz, Thomas A. Edison, John Fitch, Robert Fulton, Matthew Fontaine Maury, Samuel F. B. Morse, Simon Newcomb, William Thornton, and other eminent American men of science.

In the Basement display area the Library will present photographs and publications of American Nobel Prize winners in the field of science: Percy W. Bridgman, Arthur H. Compton, Irving Langmuir, Albert A. Michelson, Harold C. Urey, and many others. Here the public may also see how scientific apparatus has been applied to the Library's everyday work. The original prospectus and proposed constitution of the AAAS, printed and circulated 100 years ago, will be on view in a special case.

Other special exhibits are: an exhibit of *Geological Maps,* including representative examples covering the development of these special purpose maps during the past century, which may be seen in the Maps Division, and the manuscript of "The Theory of Relativity," by Albert Einstein, a copy which he made in November 1943 of his original manuscript which had been destroyed by fire. This is to be shown in a case in the Great Hall on the main floor as the Exhibit-of-the-Week for September 11–17.

Annual International Photography-in-Science Salon

One of the most interesting high lights of the Centenary of the American Association for the Advancement of Science will be the Second Annual International Photography-in-Science Salon, sponsored by *The Scientific Monthly* and the Smithsonian Institution. Basic requirement of this annual competition is that all entrants shall be actively engaged in scientific research (including photographic), teaching, private practice, or consulting. The entries may depict experimental work, fundamental research, or experimental operations in developmental or applied research.

Inquiries were received this year from such faraway places as Australia and such unlikely ones as warworn Poland. Nearly 300 black-and-white and colored prints and transparencies were entered from 20 states, the District of Columbia, England, and Poland.

Prizewinners—Black and White

First Prize—William F. Meggers, chief, Spectroscopy Section, National Bureau of Standards, Washington, D. C.: "Natural and Artificial Mercury, 5,461 A."

Second Prize—E. J. Boer *and* Paul Forgrave, Battelle Memorial Institute, 505 King Avenue, Columbus, Ohio: "Simulated Gas Flow in a Steam Locomotive Model."

Third Prize—Brian O'Brien *and* Gordon G. Milne, Institute of Optics, University of Rochester, Rochester, New York: "Bullet-induced Fracture Wave in Glass" (10,000,000 frames per second).

Honorable Mention—James Hillier, Stuart Mudd, and Andrew G. Smith, RCA Laboratories, Princeton, New Jersey: "Bacteriophage Lysis"; Walter R. Fleischer, Harvard University, Cambridge, Massachusetts: "Radioactive Carbon Synthesized by a Rabbit Liver Slice Into Glycogen" (mag. 600×); Charles F. Lackey, USDA: "Leafhopper Stylets in Sugar Beet Petiole"; J. J. Nassau, Warner and Swasey Observatory, Case Institute of Technology, Cleveland, Ohio: "Objective Prism Spectra (from ultraviolet to infrared region)"; Muriel C. MacDowell, Department of Pathology, Long Island College of Medicine, 335 Henry Street, Brooklyn, New York: "A Complete Nephron From a Human Polycystic Kidney."

Prizewinners—Color Division

First Prize—*Thomas C. Poulter, Stanford Research Institute, Stanford, California, *and* Walter K. Lawton, Southwest Research Institute, 8400 Culebra Road, San Antonio, Texas: "Photographic Study of the Explosive Charge Used in the Poulter Method of Seismic Exploration—3 Charges"; *Second Prize*—F. S. Harris, Jr., *and* B. J. Howell, Department of Physics, University of Utah, Salt Lake City, Utah: "Diffraction Pattern I"; *Honorable Mention*—Frank H. Johnson, Department of Biology, Princeton University, Princeton, New Jersey: "Bacterial Bioluminescence."

The winning entries and other accepted prints in the 1948 Salon will be on exhibition September 1–21, 9:00 A. M. to 4:30 P. M., in the foyer of the U. S. National Museum, 10th & Constitution Avenue, N. W. An added feature, during the time of the Centennial Meeting only, will be showings of the superb color motion picture, "Naval Photography in Science," lent by the Department of the Navy. This 28-minute sound movie will be run each afternoon except Tuesday, September 14, every half hour from 1:00 to 4:00 in Room 43 of the Museum, just off the foyer.

The 1948 Judging Committee was composed of A. J. Wedderburn, Smithsonian Institution, chairman; Carleton R. Ball, formerly of the U. S. Department of Agriculture, Washington, D. C., for the biological sciences; Edward J. Stieglitz, Washington, D. C., for the medical sciences; Wallace R. Brode, National Bureau of Standards, for the physical sciences; and Sidney S. Jaffe, Washington, D. C., for photography.

Immediately after the exhibition in the National Museum, the Salon will go on tour. The itinerary follows:

October 1–30, Cranbrook Institute, Bloomfield Hills, Michigan.

November 6–30, Buhl Planetarium, Pittsburgh, Pennsylvania.

December 6–31, Franklin Institute, Philadelphia.

January 6–20, *Science Illustrated,* New York City.

February 3–24, General Foods Corporation, Central Laboratories, Hoboken, New Jersey.

March 7–26, Brown University, Providence, Rhode Island.

April 15–May 1, University of Florida, Gainesville.

May 15–30 (tentative), University of California, Berkeley.

July, Pennsylvania State Museum, Harrisburg.

December, Royal Photographic Society, London, England.

Entries in the *Third* Annual International Photography-in-Science Salon will be received by the editor of *The Scientific Monthly,* 1515 Massachusetts Avenue, N. W., Washington 5, D. C., August 24–September 14, 1949. Prizewinning and other entries will be shown at the U. S. National Museum during the month of October 1949 and at the New York meeting of the AAAS in December. Other showings may be arranged.

Symposium on Cooperation and Conflict Among Living Organisms

A concerted, many-sided drive to advance social science beyond the descriptive stage will be initiated by this symposium, to be held September 11–13. As of August 14, sponsoring organizations and their respective members of the Executive Council included: Botanical Society of America, Inc. (John S. Karling), Ecological Society of America (Chas. C. Adams), Institute of Ethnic Affairs (Laura Thompson), In-

* Dr. Poulter won first prize in the 1947 Salon with his color print of "Results of a Field Test to Determine the Spacing Necessary to Prevent Countermining in Monroe-Effect, Antisubmarine Bombs."

stitute of General Semantics (M. Kendig), National Indian Institute (John Collier), Ohio State University Personnel Research Board (Carroll L. Shartle), Association for the Advancement of Psychotherapy (Eilhard von Domarus), Society for Applied Anthropology (Edward F. Haskell, who is also convening secretary), and Sociometric Institute (Helen Jennings).

On Saturday afternoon from 2:00 to 5:00, in the Auditorium of the U. S. National Museum, John S. Karling will preside over the first session, on Conflict and Cooperation Among Plants.[1] A brief outline of the Symposium's objectives and structure by Edward Haskell will be followed by papers on "Conflict and Its Resolution in the Plant Realm," by Paul B. Sears, of Oberlin College; "Some Aspects of Antagonism and Synergism in Primitive Organisms," by Paul R. Burkholder, Yale University; "Chemical Plant Sociology," by James Bonner, of CalTech; and "Armageddon of the Microbes: A Consideration of Relationships in a Microbiological Society," by Robertson Pratt, University of California.

A session on Heterotypic Cooperation and Conflict, with Chas. C. Adams presiding, will be held on Sunday morning from 9:00 to 12:00 in the Auditorium of International Student House, 1825 R Street, N. W. This will consist of the chairman's address on "The Relation of Human Ecology to a Social Philosophy" and a series of three papers dealing with "Relations of Men, Animals, and Plants in an Island Community (Fiji)," by Laura Thompson, of the Institute of Ethnic Affairs; "Spontaneous Changes of Coaction in Aggregations of Animals and of Men," by T. H. Langlois, of Ohio State University; and "Advances and Problems in the Technology of Human Relations Education" (New York University Center for Human Relations Studies).

That same afternoon, also in International Student House, Anatol Rapoport will preside over a session on Scientific Theories of Cooperation and Conflict, which will be participated in by Douglas M. Kelley, of the Bowman Gray School of Medicine, whose subject will be "General Semantics in the Transformation of Conflict Into Cooperation"; Dr. Haskell, collaborating with Burton Wade and Jerome Pergament, in a paper on "The Coaction Compass: Integration of Independent Discoveries of the Same General Conceptual Scheme by Students of Plant, Animal, and Human Coactions"; and Joseph L. Moreno, of the Sociometric Institute, who will discuss "The Sociometry of Living Organisms."

The chairman of the session on Mental Cooperation and Conflict, meeting Monday morning from 9:00 to 12:00 at 2111 Florida Avenue, N. W., has not been announced. Carroll L. Shartle, E. von Domarus, and Dr. Haskell will speak, respectively, on "Effective Leadership in Democracy," "Psychotherapy in the Resolution of Social Conflict; Sociotherapy in the Resolution of Mental Conflict," and "Conflict and Cooperation Between Western and Eastern Ideologies."

The Monday afternoon session, from 1:30 to 4:30 at the same address, will be presided over by John Collier and will strike the keynote of this particular symposium—Organizing Scientific Research for Peace. The chairman's address on "The State of Social Science and Practice" will be followed by a report of the representatives of the Executive Council (which meets preceding the above program) on the objectives and structure of the proposed permanent organization and organization of interdepartmental Interim Commissions. The permanent organization is visualized as an OSRD-like organization which may hope to succeed in advancing social science through the stages of natural classification and evolution theory, into that achieved by the physical sciences, where scientific fields are connected, and science is closely linked to philosophy and technology. The possibility of such coordination of effort emerged with the independent discoveries of parts of the same general conceptual scheme by students of plant, animal, and human coactions, to be described in the Symposium's Sunday afternoon session. Should this scheme prove to be a natural classification, it would create conditions for rapid coordination and advance of social science, as the Periodic Table did in chemistry.

Some of the Interim Commissions' probable objectives—annotated bibliography on cooperation and conflict, systematized vocabulary, and clarification of underlying philosophical assumptions—are designed to permit mobilization of the mass of accumulated social-scientific data and constructs in preparation of a further phase in the organization of scientific research for peace, the World Congress of Social and Allied Sciences planned for 1949. It is anticipated that the philosophical, scientific, and technological structures of Western and Eastern ideologies about conflict and cooperation will have been sufficiently clarified by then to make possible their gradual displacement by an advanced social science which is systematic, useful, and universally accepted, as physical science already is today.

[1] Organization and sponsorship by the Botanical Society of America, Inc., is limited to this panel.